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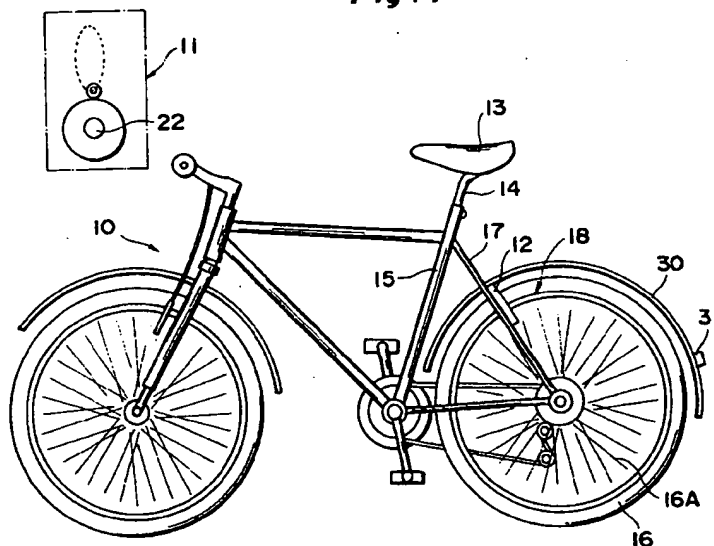
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## (54) Identification device for two-wheeled vehicle

(57) A two-wheeled vehicle 10 for easy handling in a place where two-wheeled vehicles are parked in congestion, including a transmitter 11 for sending an identification signal, indicator means 26 (26A, 26B) or a lock 18 mounted on the two-wheeled vehicle 10, a receiving circuit 24 for receiving the identification signal from the

transmitter 11, and a control circuit for actuating lock-opening means 27 or indicator means 26 incorporated in the lock 18 when the receiving circuit 24 receives the predetermined identification signal.

Fig. 1



from CSP-110-A, CSP-111-A, CSP-112-A

binary digits. As the identification signal, a combination of numeric values, for example, may be used which corresponds to a frame number attached to the bicycle frame, whereby management for theft prevention or the like can be rationalized, and by using combinations of greater numeric values, security against theft can be promoted.

## BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a side view schematically showing a bicycle according to the present invention;

Fig. 2 is a schematic block diagram of the transmitter and the receiving apparatus according to the present invention; and

Fig. 3 is a front view of a lock according to the present invention, with a portion broken away for clarity.

## DESCRIPTION OF PREFERRED EMBODIMENTS

The present invention will be described in detail referring to an embodiment shown in the accompanying drawings.

Fig. 1 is a side view schematically showing an embodiment of a bicycle according to the present invention.

A bicycle according to the present invention comprises a transmitter 11 of a pendant type, for example, which is carried by the user of the bicycle 10, and a receiving apparatus 12 which operates on receiving an identification signal from the transmitter 11.

In the example illustrated, the receiving apparatus 12 is mounted in conjunction with a lock 18 on a seat stay 17 located in a position closer to a rear wheel 16 than a seat tube 15.

Fig. 2 is a schematic block diagram including the transmitter 11 and the receiving apparatus 12.

As shown in Fig. 2(A), the transmitter 11 includes a transmitting circuit 20 with a transmitting antenna 19, a power source 21 preferably formed by a thin battery, such as a button-type battery, and a push-button switch 22 to control the operation of the transmitting circuit 20. The transmitting circuit 20 generates an identification signal in the form of a digital code signal, for example, when the push-button switch 22 is manipulated. The identification signal is transmitted from the transmitting antenna 19 when the use of the bicycle 10 manipulates the push-button switch 22.

As the identification signal sent from the transmitter 11, an analog signal may be used, but a digital code signal is preferably adopted to enable the user of a large number of identification signals without duplication, always prevent radio interference among numerous bicycles, and enhance the security against theft, or the like. Any appropriate distance can be selected as the signal reachable distance from the transmitter 11 can be selected appropriately, such as a range of 5 to 10

meters, for example.

By arranging for identification signals to correspond to the frame numbers attached to the bicycle frames, the management of bicycles 10 can be rationalized. Moreover, if identification signals are formed of a combination of manifold numeric values, the security against theft or the like can be further improved.

As shown in Fig. 2(B), the receiving apparatus 12 for receiving an identification signal from the transmitter 11 includes a receiving circuit 24 for receiving an identification signal via the transmitting antenna 23, a control circuit 25 for deciding whether or not the receiving circuit 24 is receiving a predetermined identification signal, indicator means 26 whose operation is controlled by the control circuit 25, lock-opening means 27 used for the lock 18 and controlled by the control circuit 25, and a power source 28.

The control circuit 25 is formed by an IC circuit, for example, and puts both the indicator means 26 and the lock-opening means 27 in operating condition when the receiving circuit 24 receives a predetermined identification signal.

The indicator means 26, which is controlled by the control circuit 25, may be composed of a sounding device 26A, such as a speaker connected to the control circuit 25 through an amplifier 29, for example, and a light-emitting device 26B, such as a light-emitting diode.

The sounding device 26A, when it operates, emits a desired electronic sound. As this sounding device 26A, instead of the speaker, a buzzer or any other type of sounding device may be adopted if it is necessary.

For the light-emitting device 26B, a miniature bulb may be used, but a light-emitting diode is preferably used to reduce power consumption of the power source 28. If a light-emitting diode is used as the light-emitting device 26B, the light-emitting diode is preferably incorporated in a reflector 31 mounted on the rear side or the like of a rear-wheel mud guard 30 as shown in Fig. 1, for example.

The reflector 31 reflects the light of the light-emitting device 26B composed of a light-emitting diode included inside the reflector 31. By the reflection by the reflector 31, light emission by the light-emitting device 26B in the reflector 31 is made easily recognizable from outside.

Therefore, by incorporating the light-emitting device 26B in the reflector 31, the visibility of the operation of the light-emitting device 26B can be improved even by small power consumption. To enhance the visibility, instead of continuously lighting, the light-emitting device 26B is desirably made to flicker.

As the place of installation of the light-emitting device 26B, besides the reflector 31, the lock 18, for example, may be selected.

For the indicator means 26, it is also possible to adopt either the sounding device 26A or the light-emitting device 26B. Luminous indication by the light-emitting device 26B is superior in visibility particularly at

ing means and the indicator means by the control circuit. In addition, remote-control lock-fastening means may be incorporated in the lock when necessary.

In the exemplary embodiment, description has been made of a case where the present invention is applied to a bicycle, but the present invention is not limited to this form of embodiment, and can be applied to tricycles, motorized bicycles, and motorcycles.

With a two-wheeled vehicle according to the present invention, by actuating the indicator means by the user operating transmitter, one's own bicycle can be found out relatively easily in such a place as a parking lot where a great number of two-wheeled vehicles are parked in congestion.

By actuating the lock-opening means of the lock by the user operating the transmitter, it is fairly easy to open the lock automatically and take out one's own two-wheeled vehicle without inserting the key into the key hole of the lock or without crouching for this lock opening work even if there are many two-wheeled vehicles intertwined together.

Hence, according to the present invention, handling of a two-wheeled vehicle can be made easy in such places as a bicycle parking lot where great many two-wheeled vehicles are parked clustered close together.

## Claims

### 1. A two-wheeled vehicle comprising:

a transmitter for transmitting an identification signal;  
indicator means mounted on said two-wheeled vehicle;  
a receiving circuit mounted on said two-wheeled vehicle, for receiving said identification signal from said transmitter; and  
a control circuit mounted on said two-wheeled vehicle, for actuating said indicator means when said receiving circuit receives a predetermined identification signal.

### 2. A two-wheeled vehicle comprising:

a transmitter for transmitting an identification signal;  
indicator means mounted on said two-wheeled vehicle;  
a lock mounted on said two-wheeled vehicle;  
lock-opening means incorporated in said lock;  
a receiving circuit mounted on said two-wheeled vehicle, for receiving said identification signal from said transmitter; and  
a control circuit mounted on said two-wheeled vehicle, for actuating said indicator means and said lock-opening means when said receiving circuit receives a predetermined identification signal.

3. A two-wheeled vehicle according to Claim 1 or 2, wherein said indicator means is a light-emitting device.
4. A two-wheeled vehicle according to Claim 3, further comprising: a reflector, wherein said light-emitting device is a light-emitting diode incorporated in said reflector.
5. A two-wheeled vehicle according to Claim 1 or 2, wherein said identification signal corresponds to a frame number attached to said two-wheeled vehicle.

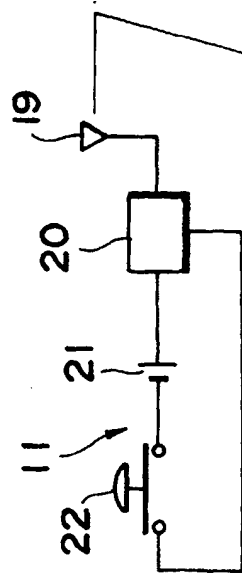


Fig. 2(a)

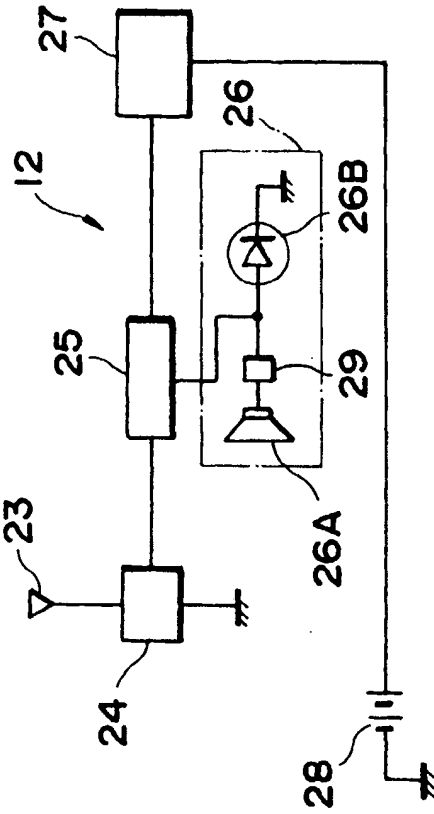


Fig. 2(b)



European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 97 10 3039

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 5 343 077 A (YOSHIDA ET AL.)	1-3	B62J6/00
Y	* column 5, line 55 - column 6, line 4; claim 1 *	4,5	B62H5/20
	---		B62H5/14
X	PATENT ABSTRACTS OF JAPAN vol. 018, no. 312 (P-1754), 14 June 1994 & JP 06 068362 A (SOUJI KOBAYASHI), 11 March 1994,	1,3	
Y	* abstract *	2	
Y	---		
Y	US 5 122 939 A (KAZDAN ET AL.) * claim 1; figures *	4	
Y	---		
Y	DE 36 13 605 A (HERGERT) * column 2, line 52 - line 60; claim 1 *	5	
E	---		
E	PATENT ABSTRACTS OF JAPAN vol. 097, no. 002, 28 February 1997 & JP 08 260784 A (SEKISUI CHEM CO LTD)	2	
Y	* abstract; figures *	2	
A	---		
A	WO 95 05515 A (DYNATEC LTD) * page 7, line 6 - line 15; claims 1,2 *	2,3	
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 24 July 1997	Examiner Grunfeld, M
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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